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10/579,515	05/12/2006	Masaharu Shimakawa	03500.111239.	6547

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FITZPATRICK CELLA HARPER & SCINTO
1290 Avenue of the Americas
NEW YORK, NY 10104-3800

EXAMINER	
SEO, JUSTIN	
ART UNIT	PAPER NUMBER
2861	
MAIL DATE	DELIVERY MODE
10/14/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,515	SHIMAKAWA ET AL.	
	Examiner	Art Unit	
	JUSTIN SEO	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *11-15 and 17-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 7/15/2009 have been fully considered but they are not persuasive. On pg. 14 under the heading "Remarks", applicant states that Moriyama does not teach using different ratios. However, claims 16-17, column 17, lines 15-51, and Fig. 26, of Moriyama, indicates that the dots 400, adjacent to color dots 402, have a certain ratio, and that regions of the black image that are further away from said dots 400, have different ratios. Therefore, Moriyama teaches using different ratios, and further, Moriyama teaches that different ratios are used for recording pixels with color ink onto black adjacent pixels than for recording pixels with color ink onto color adjacent pixels.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 1-2, 4-7, and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Moriyama et al. (US 6,084,604)** in view of **Uchiyama et al. (US 5,798,776)**.

Regarding **claim 1**, Moriyama discloses a recording apparatus comprising:

- extraction means for extracting, on the basis of recording data, both black adjacent pixels composed of pixels whose adjacent pixels are recorded with black ink (See column 29, lines 48-57. Clearly some adjacent pixels are recorded with black ink.), and color adjacent pixels that include pixels whose adjacent pixels are recorded with color ink (see column 29, lines 48-57), from among the pixels constituting a black image (see entire claims 16-17, column 29)
- data creating means for creating data that corresponds to color ink so that recording with black ink and with color ink applied (or added) according to a given ratio is done, on the black adjacent pixels or the color adjacent pixels extracted by the extraction means (see claim 17, column 29)
- recording control means for performing recording with the recording head on the basis of the recording data and the data created by the data creating means (This is inherent in Moriyama.)
- the data creating means creates data that corresponds to color ink by using different ratios for recording pixels with color ink onto the black adjacent pixels than for recording pixels with color ink onto the color adjacent pixels (see claims 16-17, column 17, lines 15-51, and Fig. 26)

Moriyama fails to disclose

- wherein said black image is recorded by superposing an image composed of pixels formed by black ink and an image based on the data corresponding to color ink created by said data creating means

However, Uchiyama teaches

- wherein said black image is recorded by superposing an image composed of pixels formed by black ink and an image based on the data corresponding to color ink created by said data creating means (see column 1, lines 14-21 and column 3, lines 23-31)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the recording apparatus of Moriyama with the teachings of wherein said black image is recorded by superposing an image composed of pixels formed by black ink and an image based on the data corresponding to color ink created by said data creating means, found in Uchiyama, for the purpose of improving image quality (see column 2, lines 29-46).

Regarding **claim 2**, Moriyama further discloses wherein the creating means creates, as data corresponding to the color ink, data obtained by using a mask pattern for creating pixels recorded according to a given ratio and processing the black adjacent pixels or the color adjacent pixels (see claim 17, column 29; claims 24 and 27, column 30).

Regarding **claim 4**, Moriyama further discloses wherein the extraction means extracts both the black adjacent pixels and the color adjacent pixels (See column 29, lines 48-57. Clearly some adjacent pixels are recorded with black ink.); and the creating means creates data that corresponds to color ink by using different ratios for recording pixels with color ink onto the black adjacent pixels and for recording pixels with color ink onto the color adjacent pixels (see claim 17, column 29).

Regarding **claim 5**, Moriyama further discloses wherein the creating means creates data that corresponds to color ink by increasing the ratio for recording pixels with color ink onto the black adjacent pixels to be greater than the ratio for recording pixels with color ink onto the color adjacent pixels (see claims 17-18, columns 29-30).

Regarding **claim 6**, Moriyama further discloses wherein the creating means creates, as data corresponding to the color ink, data obtained by using a mask pattern for creating pixels recorded according to a given ratio and processing the black adjacent pixels or the color adjacent pixels, and uses different masking ratios for the mask patterns used in the masking of the black adjacent pixels and the color adjacent pixels (see claim 17, column 29; claims 24 and 27, column 30).

Regarding **claim 7**, Moriyama further discloses wherein a plurality of color inks corresponding to different colors are used as the color ink; and the creating means uses the mask patterns corresponding to the plurality of color inks to create data corresponding to the plurality of color inks (see claim 17, column 29; claims 24 and 27, column 30).

Regarding **claim 16**, please note the rejection as set forth above with respect to claim 1.

4. **Claims 3 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Moriyama et al. (US 6,084,604)** in view of **Uchiyama et al. (US 5,798,776)** and further in view of **Iwasaki et al. (US 6,328,403 B1)**.

Regarding **claim 3**, Moriyama, as modified by Uchiyama, discloses all the limitations introduced in claims 1 and 2.

Moriyama, as modified by Uchiyama, does not seem to disclose wherein the creating means creates data that corresponds to color ink, based on the logical product of the mask pattern and either the black adjacent pixels or the color adjacent pixels.

However, Iwasaki teaches wherein the creating means creates data that corresponds to color ink, based on the logical product of the mask pattern and either the black adjacent pixels or the color adjacent pixels (see column 7, lines 32-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the recording apparatus of Moriyama, as modified by Uchiyama, with the teachings of wherein the creating means creates data that corresponds to color ink, based on the logical product of the mask pattern and either the black adjacent pixels or the color adjacent pixels, found in Iwasaki, for the purpose of distributing the colors in order to improve image quality, as is well-known in the art.

Regarding **claim 8/7/6/5/4/3/2/1**, Moriyama further discloses wherein the recording control means records by ejecting black ink according to data that corresponds to black ink (This is inherent in the reference.), and also records by ejecting color ink according to data obtained from the logical sum of data that corresponds to color ink in the recording data and data that corresponds to color ink created by the creating means (This is also inherent in the reference. If color data is not adjacent to black data, then the original color data is recorded. And if color data is adjacent to black data, then the color data created by the creating means is recorded. See claims 16-17, column 29.).

5. **Claims 9-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Moriyama et al. (US 6,084,604)** in view of **Uchiyama et al. (US 5,798,776)** and further in view of **Seto et al. (US 5,828,396)**.

Regarding **claim 9**, Moriyama, as modified by Uchiyama, discloses all the limitations introduced in claim 1.

Moriyama, as modified by Uchiyama, does not seem to disclose wherein the extraction means extracts objective pixels as black adjacent pixels when there is more than a predetermined number of black pixels (Note: Moriyama already discloses this. The predetermined number can be any number.) in a matrix which is composed of L x M (where L and M are integers expressed by 1, 3, 5 .... n, n + 2, and where n is a positive integer) pixels and in which pixels constituting a black image are centered around the objective pixels (Note: this is inherent in Moriyama.).

However, Seto teaches wherein the extraction means extracts objective pixels as black adjacent pixels when there is more than a predetermined number of black pixels in a matrix which is composed of L x M (where L and M are integers expressed by 1, 3, 5 .... n, n + 2, and where n is a positive integer) pixels (See Fig. 20 and column 19, lines 20-34.) and in which pixels constituting a black image are centered around the objective pixels.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the recording apparatus of Moriyama, as modified by Uchiyama, with the teachings of a matrix whose dimension is an odd number by an odd

number, found in Seto, for the purpose of symmetrically centering the objective pixel, as is well-known in the art.

Regarding **claim 10**, Seto further discloses wherein the extraction means extracts objective pixels as color adjacent pixels when there is more than a predetermined number of color dot pixels (Note: Moriyama already discloses this. The predetermined number can be any number.) in a matrix composed of L x M (where L and M are integers expressed by 1, 3, 5 .... n, n + 2, and where n is a positive integer) pixels (See Fig. 20 and column 19, lines 20-34.) and in which pixels constituting a black image are centered around the objective pixels (Note: this is inherent in Moriyama.). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the recording apparatus of Moriyama, as modified by Uchiyama, with the teachings of a matrix whose dimension is an odd number by an odd number, found in Seto, for the purpose of symmetrically centering the objective pixel, as is well-known in the art.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN SEO whose telephone number is (571)270-1327. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on 571-272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW LUU/
Supervisory Patent Examiner, Art Unit 2861

Justin Seo

/Justin Seo/
Examiner, Art Unit 2861

October 8, 2009